

## MODERN FACTORS IN THE FORMATION OF RESPIRATORY FAILURE IN PNEUMONIA IN YOUNG CHILDREN

Takhirova Rokhatoy Normatovna

Department of Faculty Pediatrics, Tashkent Pediatric Medical Institute

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**Abstract.** *In this work, social and hygienic studies of the incidence of pneumonia and the reasons for the formation of a complicated course of pneumonia in young children were carried out. The most common syndromes aggravating the course of pneumonia were respiratory failure of varying degrees.*

**Keywords:** *pneumonia, obstructive syndrome, social factors, respiratory failure*

**Relevance.** Despite the fact that many problems associated with respiratory pathology have been successfully resolved, the incidence of unfavorable outcomes of this pathology is still high. one of the manifestations of the aggravated course of pneumonia in children is the complicated manifestation of the process, in particular respiratory failure. considering the increasing prevalence of obstruction in children, assessment of predisposing risk factors and the development of severe pathologies is an important prognostic and preventive measure. [1,4,6].

The causes of complications of this pathology are diverse, among them the leading role is played by social-hygienic, medical-organizational and medical-biological factors. in the formation of a complicated course of pneumonia in children of the first year of life, the decisive role belongs to antenatal factors [3,5].

To date, clear relationships have been established between the level of socio-economic development of the population and the health status of individuals in order to identify similar patterns in observed sick young children. existing data indicate a high incidence of concomitant pathology in patients with covid-19 and it is possible that this is one of the main factors [2,7].

The purpose of the study was to study the frequency of pneumonia with respiratory failure (rf) in young children depending on the influence of socio-biological factors

**Materials and methods of research.** The subjects of the study were 66 children with acute complicated pneumonia with RF aged from 3 months to 3 years, including 40 children under 1 year, 26 children from 2 years. up to 3 years. In all cases, the diagnosis of pneumonia was based on radiological, laboratory and clinical research methods. Anamnestic, clinical and laboratory parameters were analyzed. A statistical analysis was carried out based on the annual reports of the clinic of the city children's hospital No. 4. To clarify the frequency of morbidity in all children and mothers, data from outpatient observations (outpatient records) were analyzed. Calculations of relative indicators, standardization were carried out, and the probabilities of differences were determined using the Fisher-Student table.

Our research has shown that each of the following factors is representative as the causes that form the complication of the disease with RF, among which the following were identified: medical and organizational (33%), social and hygienic (25%), constitutional and background (42%). Specific aspects of medical and organizational factors in the formation of RF in pneumonia, based on the results of these studies, were the following: late diagnosis of the disease (15% of cases), insufficiently effective therapy in the first stages of pathology development (27%),

insufficient qualifications of doctors (10%), lack of necessary complex examination of the child and, first of all, x-ray analysis (14%), improper organization or violation of the principles of filling wards and the development on this basis of reinfection and superinfection (15%), outbreak of childhood infections in the departments (measles, chicken pox, measles rubella, etc.) (7%); lack of continuity of therapy between clinics and hospitals (12%), insufficient staffing of children's departments of hospitals with the necessary sets of medications and, first of all, antibacterial agents and drugs for transfusion and detoxification therapy (10%). Medical, social, socio-hygienic factors contributing to the complication of grade III RF were presented as follows: large families and the lack of proper attention to sick children on this basis (35%), low level of material security in a number of families (18%), lack proper amount of medical control over sick children (54%).

Constitutional and background factors included a large complex of signs: consequences of perinatal post hypoxic encephalopathy, prematurity, the presence of concomitant diseases (rickets – 25%, anemia – 38%, protein-energy malnutrition (PEM) – 18%, allergic diathesis – 19%), a history of pneumonia and pneumopathy during the neonatal period (17%). In a number of sick children, borderline conditions in the form of respiratory dysfunction, in particular vagal bronchogenic discriminatory syndrome, have been identified. In a number of children, the protracted course of the process was due to changes in the reactivity of the child's body under the influence of vaccinations. As a rule, RF pneumonia was formed against the background of repeated respiratory viral infections, which more often manifested themselves from 3 months of age.

The analysis of treatment and resuscitation measures played a significant role in terms of assessing medical and organizational factors in the formation of stage III-IV pneumonia. Adequate treatment of the main and also concomitant diseases, taking into account modern requirements of the required volume, was established in 65% of patients in urban conditions and 35% in rural areas. In a number of cases, treatment tactics were carried out without taking into account the severity of the disease and the individual characteristics of the child (25.4%). All patients with prolonged pneumonia observed by us had various initial manifestations of intoxication, as well as other symptoms of the disease, the frequency of which depended on the age of the patients.

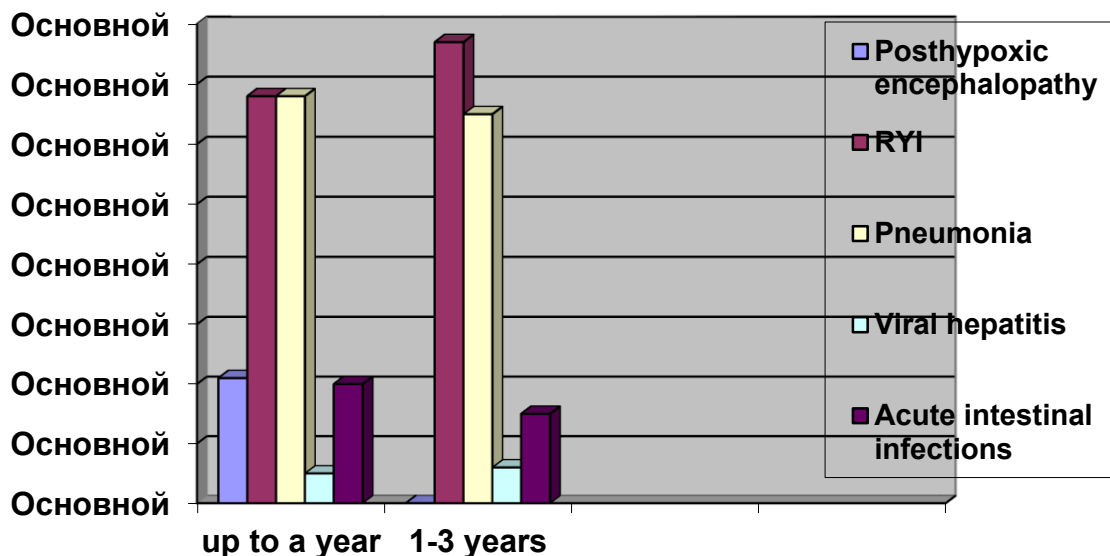
The formation of RF I-II degrees of acute pneumonia in children after the first year of life was often associated with visiting a preschool group. This was due to the fact that in the presence of functional immaturity of specific and nonspecific defense mechanisms, aggravated by the unfavorable course of anti-, intra- and postnatal periods, concomitant diseases, children showed failure of adaptive reactions to their new microbial environment. Characteristics of premorbid anamnestic data in children with pneumonia with II-III-degree RF are presented in Table 1.

**Table 1.**

***Characteristics of premorbid anamnestic data in children with pneumonia with II-III-degree RF***

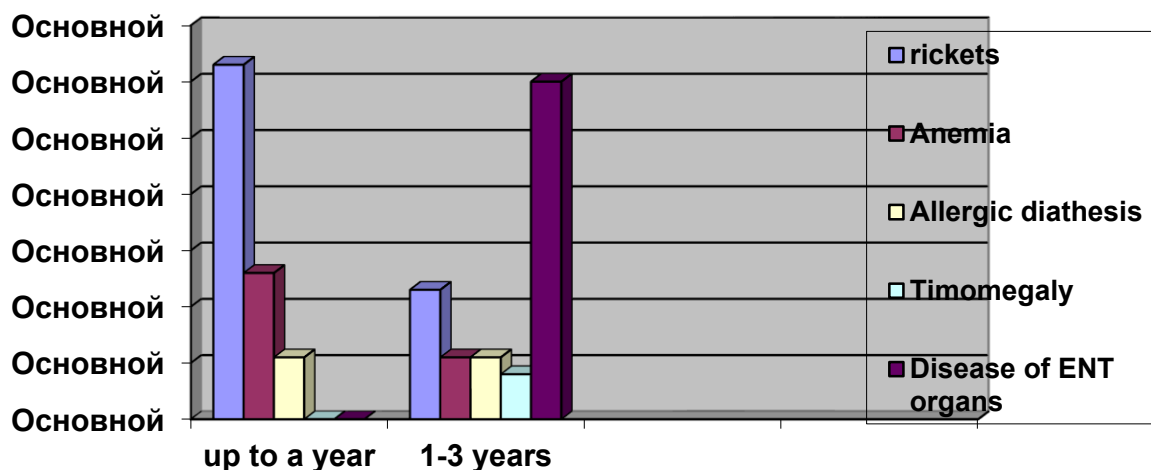
Analyzed features	Relative frequency of patterns	
	Up to a year	1-3 years
Complicated childbirth	0,26	0,23
premature	0,11	0,06
with asphyxia	0,05	0,08
Intrauterine hypotrophy	-	0,04
Type of feeding: mixed	0,31	0,24
artificial	0,26	0,26

Previous and concomitant diseases, which create opportunities to reduce the effectiveness of the body's nonspecific resistance, as well as a state of secondary immunodeficiency due to overstrain of specific protective factors or delay in their postnatal maturation, were of significant importance in the formation of RF I-II degrees of acute pneumonia. Characteristics of past and concomitant diseases in children with prolonged pneumonia are presented in diagram 1,2.



**Diagram 1. Characteristics of past diseases in children with pneumonia with RF I-II degrees**

As follows from the presented data, the development of RF III-IY degree of pneumonia against the background of rickets, anemia, allergic diathesis and other diseases in a certain way influences the course of the inflammatory process, its severity in the child and its prognosis.



**Diagram 2. Characteristics of concomitant diseases in children with pneumonia with RF III-IY degrees**

Literature data and the results of the present studies indicate that children with pneumonia and RF are characterized by a high index of infectious morbidity and, especially, a tendency to frequent respiratory viral infections.

Children who developed RF pneumonia were admitted for inpatient treatment and examination at different times from the onset of the disease. Of the total number of children under the age of 1 year, 32% were hospitalized during the first week of the disease, in the second week

- 10% and after 15 days - 58%. Among children over the age of one year, 13% were admitted during the first week, 16% in the second week, and 71% after 15 days. These data indicate that a significant factor in the formation of RF pneumonia, in addition to the components that make up the risk formula, is the late start of complex pathogenetic therapy of the disease in a hospital setting, that is, medical and organizational risk factors. These circumstances also predetermined the severity of the patients' condition upon admission to the clinic. In children under one year of pneumonia with RF, very severe conditions initially prevailed, and in children over 1 year of age, severe conditions prevailed. In general, the analyzed group of children is characterized by a predominance of severe disease upon admission to hospital treatment. The total duration of the disease in children was about 28 days. The bed-days of stay of patients in the hospital did not depend on age and averaged about 16-20 days.

Thus, our clinical observations characterize specific factors responsible for the formation of varying degrees of RF in pneumonia in sick young children.

**Conclusions.** The formation of RF of acute pneumonia in young children directly depends on general social-hygienic, medical-organizational and constitutional-background factors. Social-hygienic, medical-organizational and constitutional-background factors influence the clinical manifestations of pneumonia in young children and contribute to the development of a complicated course of the disease, and also determine an unfavorable prognosis and the incidence of death.

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